

(19)



Europäisches Patentamt

European Patent Office

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(11)

**EP 0 707 696 B1**

(12)

**EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention  
of the grant of the patent:

**02.02.2000 Bulletin 2000/05**

(21) Application number: **94923381.1**

(22) Date of filing: **07.07.1994**

(51) Int. Cl.<sup>7</sup>: **F16L 39/02, F16L 37/26**

(86) International application number:  
**PCT/US94/07675**

(87) International publication number:  
**WO 95/02149 (19.01.1995 Gazette 1995/04)**

**(54) SEPARABLE CONNECTOR FOR PRESSURE FLUID COMPONENTS**

**TRENNBARE VERBINDER FÜR KOMPONENTEN EINES DRUCKFLUIDSYSTEMS**

**CONNECTEUR SEPARABLE POUR COMPOSANTS DE FLUIDE SOUS PRESSION**

(84) Designated Contracting States:  
**DE DK FR GB IT**

(30) Priority: **09.07.1993 US 89749**

(43) Date of publication of application:  
**24.04.1996 Bulletin 1996/17**

(73) Proprietor:  
**WILKERSON CORPORATION**  
**Englewood Colorado 80110 (US)**

(72) Inventor: **WOLFE, John R., Sr.**  
**Englewood, CO 80111 (US)**

(74) Representative:  
**Weydert, Robert et al**  
**Dennemeyer & Associates Sàrl**  
**P.O. Box 1502**  
**1015 Luxembourg (LU)**

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**FR-A- 2 470 912** **US-A- 3 934 605**  
**US-A- 4 082 324** **US-A- 4 533 020**

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**EP 0 707 696 B1**

## Description

### BACKGROUND OF THE INVENTION

#### Field of the Invention:

[0001] The present invention relates to a separable connector for releasably coupling two pressure fluid components such as filters, regulators, lubricators, dryers, drains, and the like, in fluid tight relation.

#### Description of the Prior Art:

[0002] Fluid pressure systems, such as compressed air systems, require the use of a variety of interconnected devices such as filters, regulators, lubricators or oilers, drains, dryers and the like. These components have conventionally been connected by means of standard threaded piping arrangements. Various improved separable connectors have been proposed, such as the separable connections described in U.S. Pat. No. 4,070,045, issued January 24, 1978 to J.S. Colter, et al. for "SEPARABLE CONNECTION FOR CONDUIT SEGMENTS CONVEYING A FLUID UNDER PRESSURE"; U.S. Pat. No. 4,082,324, issued April 4, 1978 to R.E. Obrecht for "CONNECTION ARRANGEMENT FOR MANIFOLD BLOCKS"; U.S. Pat. No. 4,289,335, issued September 15, 1981 to J.M. Olbermann for "MODULAR CLAMPING SYSTEM FOR PRESSURE FLUID COMPONENTS"; and U.S. Pat. No. 4,352,511, issued October 5, 1982 to F. Ribble, et al. for "RELEASABLE CLAMP FOR MODULAR CONNECTOR."

[0003] Reference is also made to FR-A-2 470 912 which discloses a connector for releasably securing together two pressure fluid conducting components in fluid-tight sealed relationship, as defined in the precharacterizing portion of independent claim 1. This known connector has a joining spacer having V-shaped grooves on a mounting plate thereof which grooves are engageable with corresponding grooves on the components to be secured together.

### OBJECTS OF THE INVENTION

[0004] It is the principal object of the present invention to provide an improved separable connector for releasably coupling two pressure fluid components in fluid tight relation.

[0005] Another object of the present invention is to provide an improved connector for joining modular components in a pressure fluid system.

[0006] A further object of the present invention is to provide a separable connector of the foregoing character which is readily engageable and disengageable with the modular components, and which provides a rigid, tightly secured, fluid tight assembly between the components.

### SUMMARY OF THE INVENTION

[0007] The present invention, as defined in independent claim 1, is embodied in an improved modular connector for separably joining two modular pressure fluid components such as filters, regulators, lubricators, dryers, drains, manifolds, unions, and the like. The improved connector utilizes a modular arrangement embodying a slide fit between the connector and the components with mating wedge or cam elements providing a tight sealing engagement therebetween. By utilizing the present invention, the components can be positioned from either side, left or right-handed, of the connector. Adjoining sealing surfaces on the connector and the respective components are clamped tightly together in sealed relation by the wedge or cam members, and O-ring seals are utilized to provide a fluid tight seal between the sealing surfaces of the components and the connector. The connector is symmetrical so that the components can be easily and rapidly connected in any order or direction.

[0008] A joining spacer or connector adapted to be positioned between two pressure fluid transmitting components is provided with opposite parallel planer sealing surfaces through which pressure fluid ports open and are surrounded by O-rings. A connector block on each component further defines a component sealing surface including a pressure fluid port therein. The component surfaces are adapted for juxtaposed sealing engagement with a corresponding sealing surface on the joining spacer.

[0009] The separable component joining spacer is a plate defining a pressure fluid port therethrough and a pair of opposed sealing surfaces into each of which the port opens. A groove surrounds the port in each of the sealing surfaces and an O-ring is positioned in each groove to project outwardly from the surface. A pair of tracks project from each surface in spaced apart parallel relation on opposite diametric sides of the port, effectively the upper and lower portions thereof. Each track includes a rib extending therealong from the edge of the track opposite from the port.

[0010] A mounting block on the plate extends along one edge thereof normal to the tracks and further extends transversely to and beyond the surfaces of the plate. The mounting block and plate define a T-shaped block configuration. The block defines transverse surfaces adjacent to the plate surfaces on each surface of the block. Elongated recesses are defined opening into the block transverse surface adjacent the plate surfaces. Each of the slots defines an elongated slot surface coplaner with the juxtaposed plate surface and an opposing wedge surface sloping inwardly from the face surface of the block.

[0011] In one advantageous embodiment, for clamping a modular unit to the spacer block, a clamp block is releasably secured to the plate along an edge thereof opposite from the mounting block. The clamp block

defines a recess therein having outer elongated walls extending generally parallel to the plane of the plate surface and sloping inwardly towards the planes of the plate surfaces to define opposed wedge surfaces. A clamp screw extends through an aperture defined in the clamp block into threaded engagement with the plate for releasably securing the clamp block to the plate. A nose extends from the connector plate and projects into the recess in the clamp block.

[0012] A modular connector body is provided on each component. The connector bodies are identical and are adapted to sealingly engage with the joining spacer. Each body defines a sealing surface for cooperative sealing engagement with the sealing surface on the joining spacer. A pressure fluid port extends from the component through the modular connector body.

[0013] A pair of longitudinal slots are defined on the modular body for cooperative engagement with the corresponding tracks on the joining spacer. The component can be readily slid onto and off of the joining spacer by engaging the tracks on the spacer in the slots on the modular component.

[0014] A transverse recess or notch is defined on each transverse edge of the modular body for receiving respectively the mounting block and clamp block when the joining spacer plate is engaged with the modular connector body.

[0015] Each recess defines a transverse shoulder adjacent the body sealing surface. A wedge lip extends outwardly from each shoulder parallel to the body sealing surface and defines a wedge surface on the side thereof adjacent to the transverse shoulder. The wedge surface is dimensioned to engage the mounting block elongated wedge surfaces and the clamp block recess wedge surfaces when the modular body is engaged with the joining spacer and the clamp plate is mounted and tightened into position. The wedge surfaces force the sealing surfaces on the modular body and the joining spacer respectively into tight sealing engagement squeezing the O-ring between them.

[0016] In this manner, there is provided a modular connector utilizing a joining spacer between mounting slides on two modular components for tightly sealing and securing the components together.

[0017] Other features and advantages of the present invention will become apparent as the following description proceeds taken in conjunction with the accompanying drawings.

#### DESCRIPTION OF THE DRAWINGS

[0018]

Fig. 1 is a partially exploded isometric view of a modular connector embodying the present invention.

Fig. 2 is a top plan view of a modular connector embodying the present invention joining two pres-

sure fluid components.

Fig. 3 is a section view taken substantially in the plane of line 3-3 on Fig. 2.

Fig. 4 is a section view taken substantially in the plane of line 4-4 on Fig. 3.

Fig. 5 is a side elevation view of a portion of a pressure fluid component adapted for engagement by a modular connector.

Fig. 6 is a side isometric view of the pressure fluid component portion shown in Fig. 5.

Fig. 7 is an exploded rear isometric view of a modular connector embodying the present invention.

Fig. 8 is an exploded front isometric view of an end cap forming a part of the modular connector embodying the present invention.

#### DESCRIPTION OF THE PREFERRED EMBODIMENT

[0019] The present invention is embodied in an improved modular connector 20 for separably joining two pressure fluid components 21, 22, such as filters, regulators, lubricators or oilers, dryers, drains, manifolds, unions, and the like. The improved connector 20 is a modular unit incorporating a joining spacer or mounting block 24 and a mating attaching connector or mounting slide 25 on each of the pressure fluid components to be mounted. A slide fit is provided between the mounting block 24 and the mounting slide 25 on each component with wedge or cam elements providing a tight sealing engagement between the adjoining surfaces thereon. By utilizing the present invention, the components can be positioned from either side, left or right-handed, of the pressure fluid components. A sealing surface 26 on the mounting block 24 and a sealing surface 28 on the mounting slide 25 are clamped tightly together in sealed relation by the wedge or cam elements, and O-ring seals 29 between the surfaces are utilized to provide a fluid tight seal between the separable components. The mounting block and mounting slides are symmetrical so that the pressure fluid components can be easily and rapidly connected in any order or direction.

[0020] The joining spacer or mounting block 24 is formed by a mounting plate 30, integrally joined at one vertical edge to a support or back plate 31 adapted to be mounted on a fixed surface or support (not shown). The support or back plate 31 extends laterally from the opposing side surfaces of the mounting block in a generally T configuration. The mounting plate defines a central passage 32 therethrough with ports 34 opening into each side sealing surface 26. Each side surface 26 is provided with an annular groove 35 surrounding the port 34 therein for receiving the O-ring seal 29. At its front vertical edge or surface 36 opposite from the support or back plate 31, the mounting plate 30 forms a nose 38 with lateral inclined or wedge surfaces 39 for receiving a mounting end cap 40. A threaded hole 41 is provided in the forward surface of the nose 38 for

threadably receiving a mounting screw 42 extending through an aperture in the cap for purposes of mounting the cap 40 on the nose 38 and mounting plate 30.

[0021] For slidable engagement with the mounting slide 25 on the pressure fluid component to be supported, the mounting plate 30 of the mounting block 24 includes a pair of spaced guide rails 44 on each opposite sealing surface 26 thereof, the guide rails 44 being positioned respectively on diametrically opposite sides of the passage 32 and extending generally perpendicularly toward the support plate 31. Each guide rail 44 is integral with the mounting plate and includes a longitudinal lip 45 extending away from the passage 32 or adjacent port 34. The inner edge 46 of each rail 44 adjacent the passage 32 or port 34 is chamfered to facilitate engagement between the mounting plate 30 on the spacer or mounting block 24 and the mounting slide 25 on the pressure fluid component 21, 22.

[0022] The mounting slide 25 on the pressure fluid component is generally of a configuration, complementary to that of the mounting plate 30 and defines a pair of spaced apart grooves 48 adapted to receive the mounting block rails 44. The outer edge of each groove is undercut to provide an inward notch or groove 49 for receiving the lip 45 of each rail 44. The grooves 48 of the mounting slide 25 are positioned on opposite sides of a port 50 of a passage 51 opening into the pressure fluid component so that the port 50 and passage 51 port coincide with the port 34 and passage 32 in the mounting plate 30 when the connector is assembled. The sealing surface 28 of the mounting slide 25 between the parallel grooves engages with the O-ring seal 29 and the juxtaposed sealing surface 26 of the mounting plate 30 of the mounting block 24 to provide a fluid pressure tight seal between the port 50 of the pressure fluid component and the port 34 of the mounting block 24.

[0023] For securing the respective sealing surfaces 26, 28 and the O-ring seal 29 tightly together, cooperative lateral tongue 54 and slot 55 wedge elements are provided respectively on the mounting slide and mounting block. To this end, a wedge groove or slot 55 is provided in the lateral surface 56 of the support or back plate 31 adjacent each sealing surface 26 of the mounting plate 30 intermediate the rails 44 and extending in a direction normal thereto. The inner surfaces 57 defining each slot 55, that is the surfaces opposed to the mounting plate sealing surfaces 26, are tapered or sloped to provide a wedge. Likewise, the end wedge surfaces 58 of each slot 55 are sloped inwardly to provide opposing wedge surfaces at the defined end of each slot 55 adjacent and at generally a right angle to the lateral wedge surface 56.

[0024] For engagement with the wedge slots 55 in the support or back plate 31 of the mounting block 24, the mounting slide 25 is provided with lateral wedge tongues 54 extending outwardly away from opposite sides of the mounting slide 25 intermediate the rail receiving grooves 48 and elongated in a direction nor-

mal to the grooves 48. The tongues 54 are adapted to be inserted into the wedge slots in the support or back plate and are provided with appropriate elongated inner sloping surfaces 59 facing away from the mounting slide sealing surface 28 and end wedge surfaces 60, for cooperative engagement with the complimentary inner sloping surfaces 57 and end wedge surfaces 58 in the mounting plate wedge slots 55. When so inserted as the mounting plate 30 on the mounting block 24 is secured to the mounting slide 25, the wedge tongues 54 engage in the wedge slots 55 and pull the sealing surfaces 26, 28 and O-ring 29 tightly together.

[0025] The mounting of the mounting block and mounting slide is completed by the end cap 40. Side wedge surfaces 61 of a recess 62 defined in the end cap engage the elongated sloping surfaces 59 of the complimentary wedge tongues 54 on the mounting slide of each component 21, 22 and received in the recess 62 when the cap 40 is mounted in place to further pull and secure the respective sealing surfaces tightly together with the O-rings forming a fluid tight seal therebetween. Likewise, top and bottom sloping wedge surfaces 64 in the recess 62 engaging the complimentary wedge surfaces 39 on the nose 38.

[0026] As the cap 40 is secured to the mounting block by tightening the mounting screw 42 therethrough, the mounting slide and its related pressure fluid component is pulled tightly onto the mounting block with the components in fluid pressure tight sealed relationship.

[0027] With the foregoing structure, various pressure fluid components can be mounted in place and readily removed or exchanged. This facilitates changing of the various components to provide for different assemblies of components thereby simplifying the installation procedure and providing for easily adaptable changes and modifications in the pressure fluid components to be utilized.

[0028] The mounting block may be secured to a frame or support or may be left unmounted and utilized to secure two fluid pressure components together. For example, a lubricator could be secured to a union with the union in turn secured to a pipe, and with the lubricator further secured to a filter through a mounting block which is mounted on a fixed support.

## Claims

1. A connector for releasably securing together two pressure fluid conducting components (21, 22) in fluid tight sealed relationship, said connector (20) comprising, in combination, a joining spacer (24) having a mounting plate (30) and a back plate (31) joined at one edge to the mounting plate (30), said mounting plate (30) defining a pair of opposed sealing surfaces (26) and a pressure fluid port (34) therein opening into each of said surfaces (26), a connector slide (25) on each component (21, 22) defining a sealing surface (28) and a pressure fluid

- port (50) opening into said surface (28), said connector slide (25) and said joining spacer (24) being adapted for sealing engagement with corresponding sealing surfaces (26, 28) in juxtaposed sealing relationship and said ports (34, 50) in communication, an O-ring seal (29) positioned between said surfaces (26, 28) and surrounding said ports (34, 50) and a pair of parallel, spaced apart rails and grooves (44, 48) on said joining spacer and connector slide surfaces (26, 28), for joining said spacer and slide (24, 25) in sealing relation, characterized by a wedge tongue (54) on one side of the connector slide (25) of each component and a wedge slot (55) in said joining spacer back plate (31) on each side of said mounting plate (30), said wedge tongues (54) and wedge slots (55) having coacting wedge surfaces (57, 58, 59, 60) for wedgingly clamping said spacer (24) and slide (25) together in sealed relation when the tongues (54) are inserted into the slots (55) and pull said sealing surfaces (26, 28) and O-ring seal (29) tightly together as the mounting plate (30) on the joining spacer (24) is secured to the connector slide (25).
2. A connector according to claim 1, characterized by another wedge tongue (54) on an opposite side of the connector slide (25) of each component and a mounting cap (40) for securing said connector slide (25) and joining spacer (24) together in fluid tight relation, said mounting cap (40) defining a recess (62) and cooperating wedge surfaces (39, 59, 61, 64) in said mounting cap recess (62), on said another wedge tongue (54) and on said joining spacer mounting plate (30) whereby engagement of said connector slide (25), joining spacer (24) and cap (40) provides a fluid tight sealed engagement between said slide (25) and said spacer (24).
  3. A connector according to claim 2, characterized in that said wedge tongues (54) extend outwardly away from opposite sides of said connector slide (25) intermediate said grooves (48) and are elongated in a direction normal to said grooves (48), said coacting wedge surfaces comprising an elongated sloping surface (59) formed on each wedge tongue (54) and facing away from the connector slide sealing surface (28).
  4. A connector according to claim 3, characterized in that the back plate slots (55) are intermediate said rails (44) and extending in a direction normal thereto, and said coacting wedge surfaces comprise elongated sloping surfaces (57) in said slots (55) opposed to said mounting plate sealing surfaces (26) and engageable with the sloping surfaces (59) on the wedge tongues (54) received in said slots (55).
  5. A connector according to claim 3, characterized in that the cooperating wedge surfaces comprise side wedge surfaces (61) in the mounting cap recess (62) engageable with the elongated sloping surfaces (59) on the wedge tongues (54) received in the mounting cap recess (62).
  6. A connector according to claim 1, characterized in that the coacting wedge surfaces comprise cooperating sloping end wedge surfaces (58, 60) in each wedge slot (55) and the respective wedge tongue (54).
  7. A connector according to claim 2, characterized in that the cooperating wedge surfaces comprise top and bottom sloping wedge surfaces (64) in the mounting cap recess (62) engaging complementary wedge surface (64) on a nose (38) of the joining spacer mounting plate (30).
  8. A connector according to any one of claims 2 to 7, characterized by a clamp screw (42) extending through an aperture defined in said mounting cap (40) into threaded engagement with said joining spacer mounting plate (30).
  9. A connector according to any one of claims 1 to 7, characterized in that the outer edge of each groove (48) in the connector slide (25) is undercut to provide an inward notch (49) for receiving a lip (45) on the complementary rail (44), said lip (45) extending away from the pressure fluid port (34) in the joining spacer (24).
- ### Patentansprüche
1. Verbinder zum lösbaren Aneinanderbefestigen von zwei Druckfluid führenden Bauteilen (21, 22) in fluiddichter Zuordnung, wobei der Verbinder (20) in Kombination aufweist, ein Verbindungszwischenstück (24) mit einer Befestigungsplatte (30) und einer Tragplatte (31), die auf einer Seite mit der Befestigungsplatte (30) verbunden ist, wobei die Befestigungsplatte (30) zwei gegenüberliegende Dichtflächen (26) aufweist und eine Druckfluidöffnung (34) hat, die in beide Flächen (26) mündet, eine Verbindungsführung (25) an jedem Bauteil (21, 22) mit einer Dichtfläche (28) und einer Druckfluidöffnung (50), die in die Dichtfläche (28) mündet, wobei die Verbindungsführung (25) und das Verbindungszwischenstück (24) ausgelegt sind, um dicht aneinander zu liegen mit zugeordneten Dichtflächen (26, 28) in gegenüberliegender, abgedichteter Zuordnung und miteinander kommunizierenden Öffnungen (34, 50), eine O-Ringdichtung (29) zwischen den Dichtflächen (26, 28) und um die Öffnungen (34, 50) herum, und zwei parallele, voneinander beabstandete Schienen und

- Nuten (44, 48) am Verbindungszwischenstück und den Flächen (26, 28) der Verbindungsführung, um das Zwischenstück und die Führung (24, 25) in abgedichteter Zuordnung miteinander zu verbinden, gekennzeichnet durch eine Keilzunge (54) an einer Seite der Verbindungsführung (25) an jedem Bauteil und einen Keilschlitz (55) in der Tragplatte (31) des Verbindungszwischenstücks auf jeder Seite der Befestigungsplatte (30), wobei die Keilzungen (54) und die Keilschlitz (55) zusammenwirkende Keifflächen (57, 58, 59, 60) aufweisen, um das Zwischenstück (24) und die Führung (25) in abgedichteter Zuordnung durch Verkeilen aneinander festzuklemmen, wenn die Zungen (54) in die Schlitz (55) eingeführt werden, und um die Dichtflächen (26, 28) und die O-Ringdichtung (29) dicht zusammenzuziehen bei der Befestigung der Befestigungsplatte (30) des Verbindungszwischenstückes (24) an der Verbindungsführung (25).
2. Verbinder nach Anspruch 1, gekennzeichnet durch eine andere Keilzunge (54) an der gegenüberliegenden Seite der Verbindungsführung (25) eines jeden Bauteiles und eine Befestigungskappe (40), um die Verbindungsführung (25) und das Verbindungszwischenstück (24) in fluiddichter Zuordnung aneinander zu befestigen, wobei die Befestigungskappe (40) eine Aussparung (62) aufweist und kooperative Keifflächen (39, 59, 61, 64) in der Aussparung (62) der Befestigungskappe, an der anderen Keilzunge (54) und an der Befestigungsplatte (30) des Verbindungszwischenstückes, damit die Miteinanderverbindung der Verbindungsführung (25), des Verbindungszwischenstücks (24) und der Kappe (40) eine fluiddichte Zuordnung zwischen der Führung (25) und dem Zwischenstück (24) schafft.
3. Verbinder nach Anspruch 2, dadurch gekennzeichnet, daß die Keilzungen (54) nach außen von gegenüberliegenden Seiten der Verbindungsführung (25) zwischen den Nuten (48) wegragen und in einer Richtung senkrecht zu den Nuten (48) langgestreckt sind, wobei die zusammenwirkenden Keifflächen eine langgestreckte, schräge Keiffläche (59) an jeder Keilzunge (54) aufweist, die von der Dichtfläche (28) der Verbindungsführung wegweist.
4. Verbinder nach Anspruch 3, dadurch gekennzeichnet, daß die Tragplattenschlitz (55) zwischen den Schienen (44) liegen und sich senkrecht zu diesen erstrecken, und daß die zusammenwirkenden Keifflächen langgestreckte, schräge Flächen (57) in den Schlitz (55) gegenüberliegend zu den Dichtflächen (26) der Befestigungsplatte aufweisen, die mit den schrägen Flächen (59) der in den Schlitz (55) aufgenommenen Keilzungen (54) in Eingriff zu bringen sind.
5. Verbinder nach Anspruch 3, dadurch gekennzeichnet, daß die kooperativen Keifflächen seitliche Keifflächen (61) in der Aussparung (62) der Befestigungskappe aufweisen, die in Eingriff bringbar sind mit den langgestreckten, schrägen Flächen (59) an den Keilzungen (54), die in der Aussparung (62) der Befestigungskappe aufgenommen sind.
6. Verbinder nach Anspruch 1, dadurch gekennzeichnet, daß die zusammenwirkenden Keifflächen kooperative, schräge Flächen und Keifflächen (58, 60) in jedem Keilschlitz (55) und an der zugeordneten Keilzunge (54) aufweisen.
7. Verbinder nach Anspruch 2, dadurch gekennzeichnet, daß die kooperativen Keifflächen obere und untere schräge Keifflächen (64) in der Aussparung (62) der Befestigungskappe aufweisen, die an komplementären Keifflächen (64) an einer Nase (38) der Befestigungsplatte (30) des Verbindungszwischenstückes anliegen.
8. Verbinder nach einem der Ansprüche 2 bis 7, gekennzeichnet durch eine Klemmschraube (42), die durch eine Öffnung in der Befestigungskappe (40) hindurchragt und in die Befestigungsplatte (30) des Verbindungszwischenstücks eingeschraubt ist.
9. Verbinder nach einem der Ansprüche 1 bis 7, dadurch gekennzeichnet, daß der äußere Rand einer jeden Nut (48) in der Verbindungsführung (25) hinterschnitten ist, um eine Innennut (49) zur Aufnahme einer Lippe (45) an der komplementären Schiene (44) zu bilden, wobei die Lippe (45) von der Druckfluidöffnung (34) in dem Verbindungszwischenstück (24) wegragt.

#### Revendications

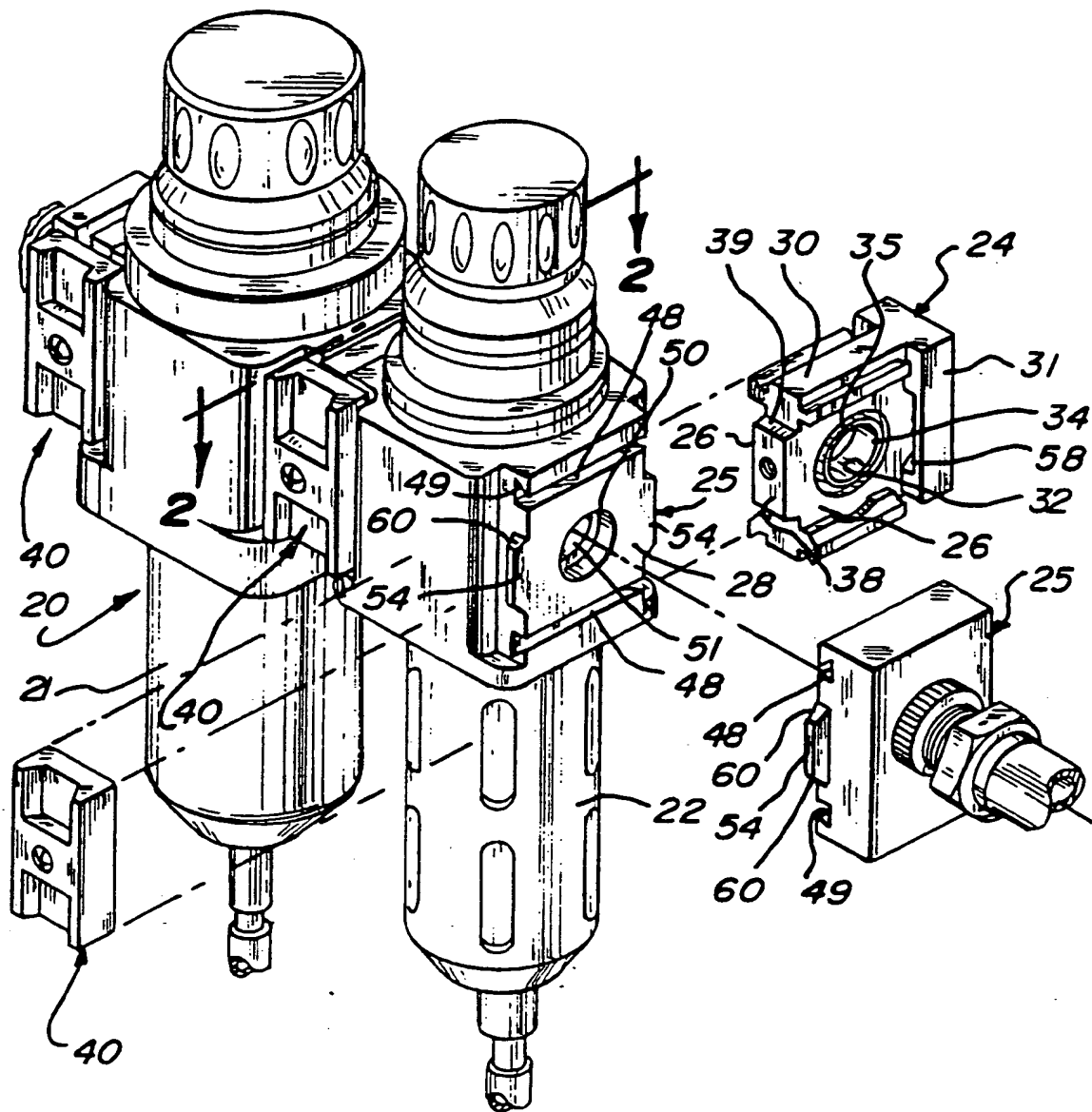
1. Connecteur pour fixer ensemble de façon détachable deux éléments (21, 22) de conduction de fluide sous pression, en relation étanche au fluide, le connecteur (20) comportant, en combinaison, un écarteur de jonction (24) ayant une plaque de montage (30) et une plaque arrière (31) jointe le long d'un bord à la plaque de montage (30), la plaque de montage (30) ayant deux surfaces d'étanchéité opposées (26) et un orifice (34) pour le fluide sous pression et débouchant dans chacune de ces surfaces (26), une glissière de raccordement (25) prévue sur chaque élément (21, 22) et pourvue d'une surface d'étanchéité (28) et d'un orifice (50) pour le fluide sous pression et débouchant dans cette surface (28), cette glissière de raccordement (25) et l'écarteur de jonction (24) étant conçus pour engagement étanche avec les surfaces d'étanchéité correspondantes (26, 28) en relation étanche juxtaposée et avec les orifices (34, 50) en commu-

nication, une bague d'étanchéité annulaire (29) disposée entre lesdites surfaces (26, 28) et entourant les orifices (34, 50), et une paire de rails et de rainures (44, 48) écartés et parallèles sur l'écarteur de jonction et les surfaces (26, 28) de la glissière de raccordement, pour joindre l'écarteur et la glissière (24, 25) en relation étanche, caractérisé par une languette formant clavette (54) sur l'un des côtés de la glissière de raccordement (25) de chaque élément et une rainure (55) de réception de la languette formée dans la plaque arrière (31) de l'écarteur de jonction sur chaque côté de la plaque de montage (30), les languettes formant clavettes (54) et les rainures (55) de réception des languettes ayant des surfaces inclinées (57, 58, 59, 60) agissant en commun pour serrer par coinçage l'écarteur (24) et la glissière (25) ensemble en relation étanche lorsque les languettes (54) sont introduites dans les rainures (55) et pour tirer les surfaces d'étanchéité (26, 28) et la bague d'étanchéité annulaire (29) de façon étanche l'une vers l'autre lorsque la plaque de montage (30) de l'écarteur de jonction (24) est fixée à la glissière de raccordement (25).

2. Connecteur selon la revendication 1, caractérisé par une autre languette formant clavette (54) sur un côté opposé de la glissière de raccordement (25) de chaque élément et un chapeau de montage (40) pour fixer la glissière de raccordement (25) et l'écarteur de jonction (24) ensemble en rotation étanche au fluide, le chapeau de montage (40) étant pourvu d'une cavité (62) et des surfaces inclinées coopérantes (39, 59, 61, 64) étant prévues dans la cavité (62) du chapeau de montage, sur ladite autre languette formant clavette (54) et sur la plaque de montage (30) de l'écarteur de jonction de sorte que l'engagement de la glissière de raccordement (25), de l'écarteur de jonction (24) et du chapeau (40) produise un engagement étanche au fluide entre la glissière (25) et l'écarteur (24).
3. Connecteur selon la revendication 2, caractérisé en ce que les languettes formant clavettes (54) s'étendent vers l'extérieur des côtés opposés de la glissière de raccordement (25) entre les rainures (48) et sont allongées dans une direction perpendiculaire par rapport aux rainures (48), les surfaces inclinées agissant en commun comportant une surface en pente allongée (59) formée sur chaque languette formant clavette (54) et orientée à l'écart de la surface d'étanchéité (28) de la glissière de raccordement.
4. Connecteur selon la revendication 3, caractérisé en ce que les rainures (55) de la plaque arrière sont disposées entre les rails (44) et s'étendent perpendiculairement par rapport à ceux-ci, et les surfaces inclinées agissant en commun comportent des sur-

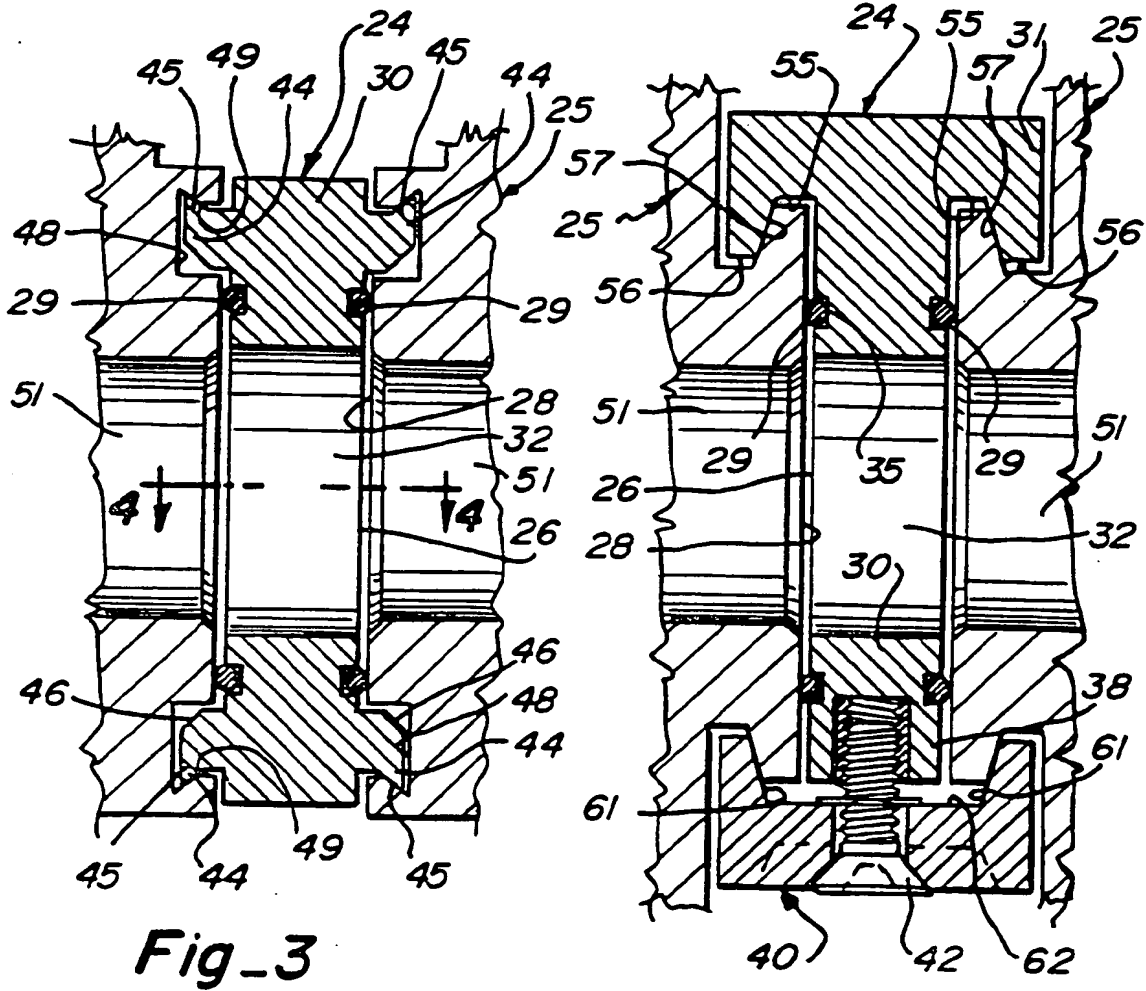
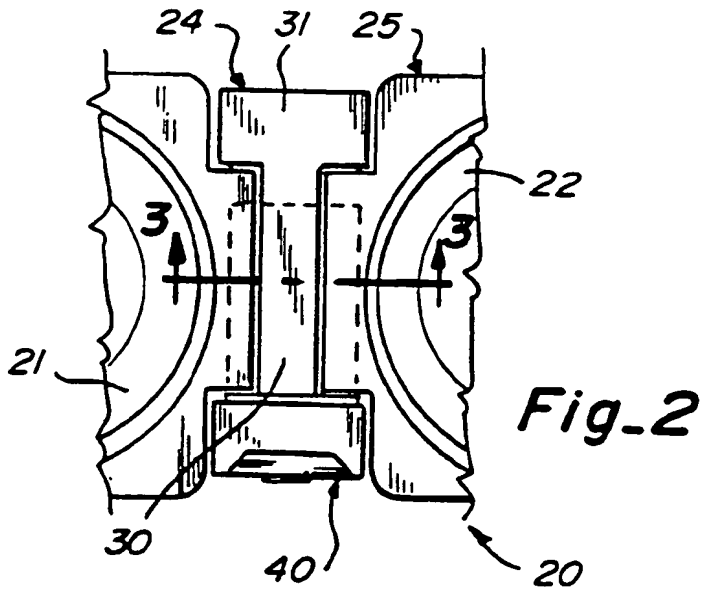
faces (57) en pente allongées prévues dans les rainures (55) opposées aux surfaces d'étanchéité (26) de la plaque de montage et pouvant venir en contact avec les surfaces en pente (59) des languettes formant clavettes (54) reçues dans les rainures (55).

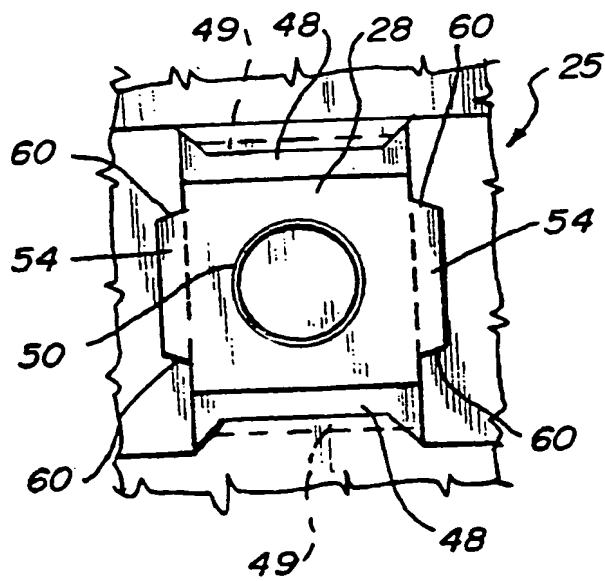
5. Connecteur selon la revendication 3, caractérisé en ce que les surfaces inclinées coopérantes comportent des surfaces inclinées latérales (61) formées dans la cavité (62) du chapeau de montage et pouvant contacter les surfaces en pente allongées (59) des languettes formant clavettes (54) reçues dans la cavité (62) du chapeau de montage.
6. Connecteur selon la revendication 1, caractérisé en ce que les surfaces inclinées agissant en commun comportent des surfaces coopérantes en pente et inclinées (58, 60) dans chaque rainure (55) de réception de la languette formant clavette et sur la languette formant clavette (54).
7. Connecteur selon la revendication 2, caractérisé en ce que les surfaces inclinées coopérantes comportent des surfaces en pente supérieure et inférieure (64) prévues dans la cavité (62) du chapeau de montage et contactant des surfaces inclinées complémentaires (64) formées sur un nez (38) de la plaque de montage (30) de l'écarteur de jonction.
8. Connecteur selon l'une quelconque des revendications 2 à 7, caractérisé par une vis de serrage (42) s'étendant à travers une ouverture formée dans le chapeau de montage (40) et vissée dans la plaque de montage (30) de l'écarteur de jonction.
9. Connecteur selon l'une quelconque des revendications 1 à 7, caractérisé en ce que le bord externe de chaque rainure (48) formée dans la glissière de raccordement (25) est dépouillée en vue de former une rainure interne (49) pour recevoir une lèvre (45) du rail complémentaire (44), cette lèvre (45) s'étendant à l'écart de l'orifice (34) pour le fluide sous pression, formé dans l'écarteur de jonction (24).



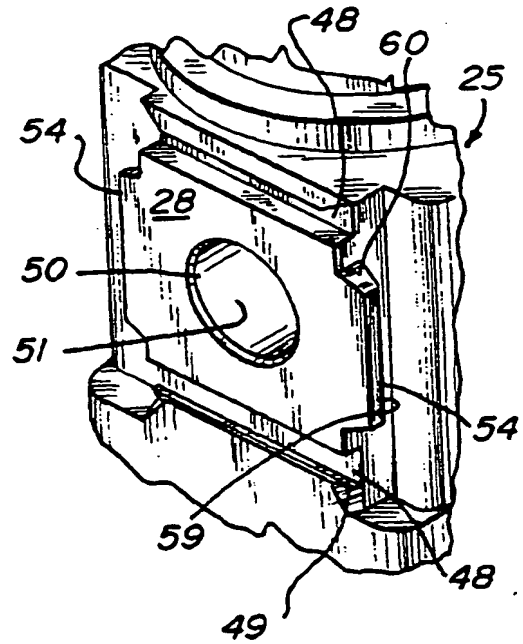
*Fig. 1*



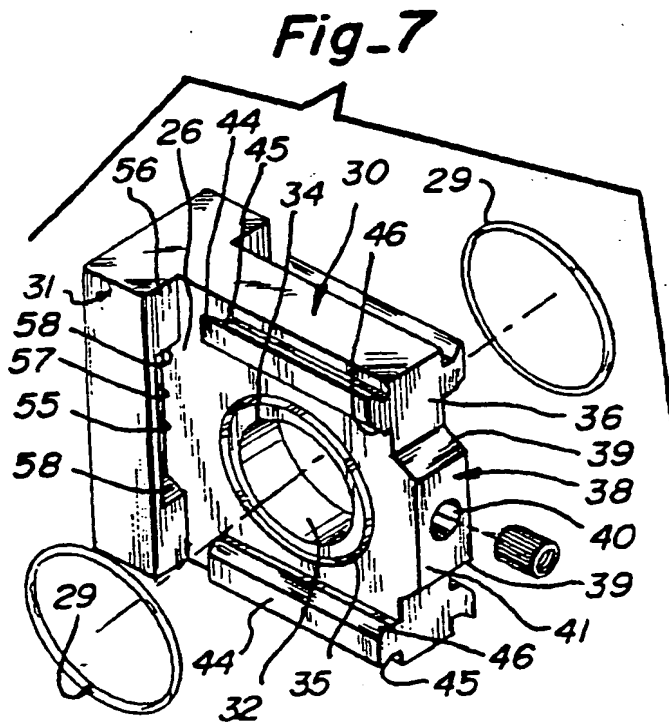




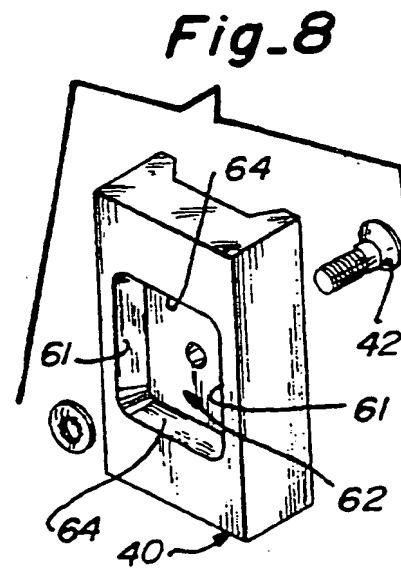
**Fig. 5**



**Fig. 6**



**Fig. 7**



**Fig. 8**